A Proposal to the
National Governors' Association
Center for Best Practices
&
NASIRE
The Association of State Government
Chief Information Officers

From
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To Establish a Clearinghouse for
State Government Specific
Application Software and Functional Best Practices

Executive Overview

In recent years, state government procurement officials have made great strides in the area of information technology (IT) procurement. By implementing new statewide agreements and by leveraging federal General Services Administration (GSA) contracts, states have gained access to state of the art computing devices and commodity (office automation, relational databases and operating system) software products at prices that are as good as, or often better than, those available to commercial consumers. Despite access to these products and prices, state governments have not enjoyed as many of the potential benefits of IT as private sector users have. One explanation for this phenomenon is the lack of commercially available, off the shelf application software to support government programs. Private industry has benefited from the availability of application products that assist companies in modernizing their capabilities in a variety of functional areas. Software and professional services vendors provide manufacturing, insurance, banking, sales, reservations, point of sale, and a host of other industry specific, functionally specific, application software products that can be acquired for commercial consumption. Those products have revolutionized customer service and lifted the productivity of entire industries. Unfortunately, state governments do not have a similar selection of application products to support their functional areas, such as: case management, client intake management, justice administration, transportation, professional and motor vehicle licensing, etc.

One reason for the lack of functional governmental applications is the inconsistency among business processes within functions and across jurisdictions. Another is the state government proclivity for contracting for customized software development to meet program and policy requirements. A third is the lack of an organized market structure accessible to firms that have not had the national sales and marketing reach necessary to develop a state government presence for their products. The unfortunate result of the status quo is that states must engage in repetitive development of similar applications as their neighboring states, with limited opportunities to learn from one another or to leverage the financial potential of the total market of state governments to attract capital investment and vendor attention to developing best of class solutions. Project risk is increased for all states when they each must work without the benefit of each other's experience and without a set of sharable tools. Systems integration vendors are often asked to share the additional risk, but since few can accept the fiduciary responsibilities associated with projects of the scale seen in the public sector, the number of potential providers is limited, increasing costs and limiting innovation.

With the advent of new techniques for application development and deployment, and the availability of the Internet to create electronic marketplaces to support business-to-business electronic commerce (or in our case e-government), it is now possible to create a robust marketplace for public sector application delivery

that supports the way states build systems. We propose that the NGA and NASIRE work cooperatively with PIB to develop an online marketplace that also acts as a repository for best practices. This marketplace would operate as a distribution channel for inter-state sharing of software program products, and as a brokerage providing access by state governments to a virtually limitless source of vendor provided application functionality. It would also provide an architectural basis for states to increase data sharing and systems reuse across departments within a single state.

The following sections detail how the new electronic marketplace would be established and operated, and the roles and responsibilities of each of the partners in its development and ongoing operation.

The Case for Action

According to the National Bureau of Standards, one of the most effective means of improving the productivity of software development is to increase the proportion of software that is re-used. Reusable software not only increases productivity, but also improves reliability and reduces development time and cost. Unfortunately, such benefits have proven elusive. What makes today's public sector application development environment more auspicious for successful software re-use? Technological advances, political reforms and new management needs all contribute to a new optimism.

Many of today's large government information systems are being built upon a multi-tier architecture (Internet client, local client, server, and database) rather than a two-tier architecture (client, database). A multi-tier architecture splits data display functions from business logic from data storage, enabling significantly more inter-operability among software and platforms. Therefore, software components -- whether display, business logic or storage -- can theoretically be inserted and removed without harming other components of an application system.

Whether called software re-use, application re-use or component-based development, the idea is simple. Write computer code once and use it again for other applications. For instance, new federal TANF requirements say that states must check whether a welfare recipient’s child is attending school. Missouri might write an application that checks public school district databases to determine whether that particular child is attending a public school or a charter school. North Carolina must also write a procedure to determine whether a welfare recipient’s child is attending school. Unlike Missouri, they may not have charter schools, but they can re-use only the public school procedure. If both are using component-based development methods, North Carolina could take the relevant portion of Missouri’s software application and use it as a component in their systems.

Though simple to describe, the multitude of proprietary programming languages, tightly integrated information systems and the lack of a unifying architecture have prevented such re-use in the past. However, the Windows 2000 and Enterprise JavaBeans platforms are the first mature platforms specifically designed to support enterprise scale component-based applications. Over the next two years most new applications will be delivered onto one of these platforms, which both make use of components easy, and from a technical perspective, mandatory.

To explain the issue of re-use, participants in a recent conference of public sector officials and their systems integration vendors found the metaphor of building a house helpful. In colonial times, homeowners built every part of their house using only those common materials that nature provided. However, technology progressed so that companies began to produce standard sized windows, doors, then fuse boxes, etc. Those standard building components could be used in a custom home building project, eliminating the need for the home-builder to fashion them from scratch. However, to use these components, someone needed to establish construction standards and building codes. For instance, how strong is the electric current that will run through a house and how will electricity use be measured? How much space should be left for a door or a window? As houses became more complicated and house pieces became standardized, homeowners identified the kind of house that they wanted, then asked architects to design the house, then asked contractors to identify the suppliers who could build and install the components.

A public sector software component would consist of building a “window,” like a procedure to check whether a child is attending school, or a “room,” a whole TANF eligibility determination function.

Such modularity means that states need not acquire whole systems; they can import only the parts of systems that are applicable to their specific needs.

On the political front, the increased popularity of block grants is replacing federal enhanced funding for automated systems. This change in financing options eliminates the federal government’s perverse financial incentives for state information system construction to meet federal needs, not the business needs of the states themselves. Now, states have an incentive to develop solutions more efficiently and in a manner targeted at modernizing operations. In addition, states are attempting to integrate previously disparate programs and develop new more effective service offerings, some of which will use the Internet as a service delivery platform. Such innovation means that states have a need for new automated systems at the point of service, rather than simply in the back-office. Developing systems for new and integrated services allows states to begin software development afresh, meeting their business needs as opposed to only meeting federal mandates.

In a recent survey of the states conducted for NASIRE over 75% of state CIO's responding indicated their desire to acquire components to support their development activities. What is missing is a resource to communicate state government needs to application developers, to provide a competitive market for delivery of software components, and to provide a forum for sharing of public domain components directly from state to state. PIB proposes establishment of a public market that solves each of these issues.

The *State to State & Vendor to State* Online Software Marketplace

PIB proposes that in conjunction with the National Governor's Association, Center for Best Practices (NGA) and NASIRE it will provide a sophisticated online "business to business" e-commerce capability supporting state governments. One objective of this effort will be to promote the production of functional application components by systems integrators, independent software developers and software companies specifically addressing state government needs. A second objective will be to provide a brokerage for the interchange of 'public domain' software application components between state governments, across agencies and jurisdictions. A third objective will be to provide a forum for states to issue requirements, including issuance of formal RFPs and RFQs for software application components to a large market of potential providers. In addition, a final objective will be to provide a forum for sharing best practices, software frameworks, evaluations of software components and other related information.

PIB is prepared to provide the following capabilities for state governments and vendors choosing to participate in this initiative:

1. Each state would have the opportunity to enroll as a user member of the State Government Online Software Marketplace ("State Marketplace")(or some other name to be selected by NGA, NASIRE, & PIB.) There would be no enrollment fee for states. States would submit a list of authorized users who would then be granted access to the "State Marketplace" repository, with the ability to download available software.
2. With state government membership would come a "local" repository for use by each state. The state's local repository could be maintained by the state itself as a location for individual developers or projects to store software components for use **only by other projects or users within that state government**. If a state chooses to offer this internal repository as a product/service for its application development projects, they could select internal standards for intrastate sharing.
3. States could then elect to offer a software component for distribution to other states. If they elected to make that offer, the component would be submitted to a moderator for review. The moderator would review the component description for accuracy and conformity with standards established for the "State Marketplace". Once accepted the component

would be copied from the “local repository” into a repository accessible by users from all enrolled states. If the component was offered at no fee to other states, authorized state government users could register for and then down load the component.

4. Vendors would be offered membership in the “State Marketplace” for an annual fee (for more about vendor membership see the Vendor Membership section below).
5. Vendors who wanted to offer components “free” to authorized state government users would follow a similar process of submission to an authorized moderator, who would do a similar review and post the component, branded as a vendor offering, for distribution through the “State Marketplace”.
6. Vendors could also choose to offer software program products (including components, frameworks or whole applications) for sale using the “State Marketplace” as a distribution channel. PIB would then post the “government rate” for licensing the product. PIB would apply with each member state, through its ordinary procurement process, to have the “State Marketplace” be a qualified vendor in each of the member states, thereby providing a brokerage service on behalf of both the member states and potential software providers. This service would lower the barriers to the state government software market, thereby increasing the total number of vendors developing software programs targeted to state government application needs.
7. Vendors could choose to enhance “free components” and offer a commercial version of those components for a fee that reflected the added value they had created.
8. State Government members would have access to a sophisticated search engine to view not only the components available in their local repository, but the entire “State Marketplace” repository for useful components. If the states choose to use free components, they would simply register for them, and download them. Components offered by vendors for a fee could be purchased using a state issued credit card, or by issuing a purchase order to the “State Marketplace”.
9. Member states could post their requirements for new software (possibly as an RFQ or RFP, and could include components, frameworks or whole applications) using the “State Marketplace” as one of its vehicles to distribute those requirements. Vendors could then choose to respond through the “State Marketplace” with a bid to provide that software product through the “State Marketplace” contract with the member state. Since the state would be procuring the “the product” as opposed to development services, the product could then remain “proprietary” to the developing vendor, and be submitted for resale to other states via the “State Marketplace.”
10. PIB in conjunction with NASIRE and NGA would also offer an “online community” where messages and reviews of vendors, components and best practice descriptions could be posted. This information exchange

site would be available to all member states. Vendors could also post marketing information about services (including component integration and modification services) related to the offerings they make through the "Software Marketplace."

The following diagram would represent a typical state government project's view of the component repositories:

A State Government Project's View of Available Components

Diagram not available in PDF version.

With the suggested offering, individual state government developers and project teams would have the opportunity to search their local repository and the "State Marketplace" repository for software components and applications that might be useful in their projects.

The following diagram displays a view of the "State Marketplace" operation:

Diagram not available in PDF version.

Vendor Membership

One of the major objectives of this proposed initiative is to provide states with a broader array of application software solutions than is currently available. To do this the marketplace must function as an effective and profitable way for vendors to bring products intended for state government consumption to market. Vendor membership must not only bring value to the states, it must bring value to vendors as well. Therefore, the following attributes of a vendor membership in the "State Marketplace" are intended to describe a high value, structured, and competitive market for vendors to conduct business with state governments.

1. Vendors can become members for an annual fee of $3 – 5,000). This fee will be distributed among NGA, NASIRE and PIB to offset their costs associated with operating the marketplace.
2. Vendor members will have access to all "public domain" components, and at their discretion can choose to use them in their pursuit and delivery of systems integration or other types of IT projects for state governments.
3. Vendor members will also have the option, at their discretion to take posted "public domain" components, and "productize" them, adding capabilities in whatever manner they believe will provide sufficient added value that states would then be willing to pay for them.
4. Vendor members will be able to host "branded" areas within the repository where they could post licensable branded software program products, purchasable by states directly from the repository via credit card or authorized purchase order.

5. Vendor members have the ability to offer marketing materials about their software products not only in their branded area but as responses to state 'search engine' inquiries. Vendors would also have the option of providing "links" to their proprietary web sites to provide additional information to prospective customers.
6. Vendor members would have the benefit of having their products validated through the process of "moderator review".
7. States would have the ability to conduct market research, contact other like minded users to conduct reference checks, procure software, and issues RFPs and RFQs for consideration, to a broader array of vendors than ever before.
8. Vendor members would pay an administrative brokerage fee equal to 25 - 40% of the transaction value of software licensed through the site. This fee would be distributed to NGA, NASIRE, and PIB to offset expenses associated with "moderator reviews", and other expenses associated with facilitating state government contracting activities.
9. Vendor members could serve as moderators, considering and evaluating software submitted by public sector members.

Partner Responsibilities

1. NGA

   As Governors contemplate the impact of e-commerce on society, they must demonstrate their capability to leverage the power of the IT to improve government operations. A significant inhibitor to their success is the high rate of failure in strategic state government IT initiatives. By participating in the creation of a software marketplace using the same principles driving business to business e-commerce initiatives in the private sector, Governors take the leadership position in modernizing government, while attracting improved support from the commercial sector to meet government needs.

   NGA will need to actively participate in the governance of this initiative. PIB proposes creating a "Board of Directors" for the "State Marketplace". NGA would provide two members for this board. Since PIB is incorporated as a 501(c)(3) corporation in VA, Board Members, who are not paid for their service accept no fiduciary obligations by serving.

   NGA would solicit representatives from state governments to be part of a "policy advisory board" to the marketplace. These advisors would be responsible for assessment of the effectiveness of the "State Marketplace" and for making recommendations for improvements to the Board of Directors.

NGA will also coordinate communication with other associations of state government officials to assure that the state marketplace receives the support required from various quarters.

2. NASIRE

State CIOs have an interest in assuring the quality and value of IT solutions in their states. They are also responsible for assuring that IT initiatives support policy and program objectives effectively. It is therefore in the interest of the members of this organization to assure that software products that meet the needs of cabinet agencies are available when and in the form they are needed by states.

NASIRE will need to actively participate in the governance of this initiative by providing two members to the initiatives Board of Directors. NASIRE would also solicit representatives from state government to so be part of a "technology advisory board" that would assure that appropriate standards for software are upheld by the State marketplace.

3. PIB

A third party "honest broker" is necessary to operate the "State Marketplace". As a charitable corporation organized to support state government IT initiatives with expertise in reusable software PIB is ideally suited to support NASIRE and NGA in this initiative.

PIB will provide 1 member to the initiative's Board of Directors. Its President will also serve as the Executive Director of the State marketplace. PIB will be responsible for staffing or negotiating and contracting with vendors to provide software, network facilities, web hosting facilities, mediators, and other resources required to operate the "State Marketplace". All proposed contracts would be submitted to the Board of Directors before being finally executed.

PIB will secure procurement vehicles with each member state to assure that the states will be able to utilize the service in a manner compatible with the state's own procurement rules.

PIB will collect and distribute all revenues associated with this initiative according to formulas developed and approved by the Board of Directors.

Conclusion

With the successful completion of Y2K readiness activities by state government IT leadership comes the opportunity to modernize state government service delivery and operations. Combined with new capabilities for delivering IT functionality and e-commerce solutions, states demands for new IT capabilities make now a critical time to enroll state governments in the information age. This initiative provides a platform for NGA and NASIRE to establish their new roles in

the emerging world of e-government. While there will be many opportunities for collaboration between the organizations in the future, this proposal identifies a concrete service that they can provide to their memberships.

This proposal describes an initiative that would be self-funding, and should provide sufficient funds to finance increased association staff involvement in IT policy issues. It is possible to have the proposed capabilities available to states within months of this proposal.

PIB looks forward to meeting with NGA and NASIRE representatives to discuss their acceptance of the proposed initiative, and to delivering new solutions to state government IT efforts.